## REMARKS

Claims 1-4, 8-11, 15-17, and 21-24, all the claims pending in the application, stand rejected on prior art grounds. Applicants respectfully traverse these rejections based on the following discussion.

### I. The Prior Art Rejections

Claims 1-4, 8-11, 15-17, and 21-24 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Lehner, et al. ("Maintenance of Cube Automatic Summary Tables," NPL, ACM 200, pp. 512-513), hereinafter referred to as Lehner, in view of Mumick, et al. (U.S. Patent No. 6,484,159), hereinafter referred to as Mumick. Applicants respectfully traverse these rejections based on the following discussion.

The claimed invention provides a method of incrementally maintaining algebraic functions in automatic summary tables (ASTs) of at least one relational database. In the rejection, the Office Action argues that the prior art of record discloses many features of the claimed invention. However, Mumick does not disclose the use of "work areas". Instead, Mumick merely describes propagation equations for propagating outerjoin-change tables. Therefore, as explained in greater detail below, Applicants respectfully submit that the prior art of record does not teach or suggest the claimed invention.

Applicants traverse the rejections because the proposed combination of Lehner and Mumick fails to teach or suggest the claimed features "wherein multiple algebraic functions share the same work area" as defined in independent claims 1, 8, 15, and 21.

First of all, the Office Action expressly acknowledges that Lehner fails to disclose "wherein multiple algebraic functions share the same work area" (Office Action, p. 6, para. 2). Specifically, Applicants submit that Lehner only teaches the use of a single non-algebraic function (count(*)) in a column (Lehner, p. 512, col. 2, para. 1).

However, the Office Action argues that Mumick discloses algebraic expressions that share the same work area (Office Action, p. 6, para. 3 (citing Mumick, col. 17, lines 29-31)). Applicants respectfully disagree and submit that Mumick does not disclose the use of "work areas". Instead, Mumick merely describes propagation equations for propagating outerjoin-change tables.

Specifically, as described in column 17, lines 28-43 of Mumick, change-table techniques can be used to derive efficient and simple algebraic expressions for maintenance of view expressions involving outerjoin operators. Outerjoin is supported in SQL. Further, outerjoins have recently gained importance because data from multiple distributed databases can be integrated by means of outerjoin views. A change table for a view involving outerjoin operations is defined as an outerjoin-change table if the change table was either generated at an outerjoin operator or is a result of propagation of an outerjoin-change table, using the propagation equations that will be derived for propagating outerjoin-change tables.

Nevertheless, propagation equations and outerjoin-change tables are unrelated to "work areas" or columns. As defined in independent claims 1, 8, 15, and 21, work areas are associated with each algebraic function (which the Office Action asserts is taught by the "simple algebraic expressions" of Mumick). Each work area is populated with

variables for each algebraic function when an automatic summary table (AST) is created and when an AST is updated. Further, each work area is maintained by adding and subtracting to and from associated variables of each work area when associated data changes in a relational database. Thus, Applicants submit that the propagation equations and outerjoin-change tables are unrelated to "work areas".

Furthermore, Applicants submit that Mumick only discloses limited use of algebraic expressions. Specifically, Mumick merely discloses "simple algebraic expressions for maintenance of view expressions" (Mumick, col. 17, lines 29-30). Nevertheless, nothing within Mumick mentions that the "simple algebraic expressions" can share the same work area (independent claims 1, 8, 15, and 21).

Accordingly, Applicants submit that Mumick does not disclose the use of "work areas". Instead, Mumick merely describes propagation equations for propagating outerjoin-change tables. Therefore, it is Applicants' position that the prior art of record fails to teach or suggest the claimed features of "wherein multiple algebraic functions share the same work area" as defined in independent claims 1, 8, 15, and 21.

## II. Formal Matters and Conclusion

In view of the foregoing, Applicants submit that claims 1-4, 8-11, 15-17, and 21-24, all the claims presently pending in the application, are patentably distinct from the prior art of record and are in condition for allowance. The Examiner is respectfully requested to pass the above application to issue at the earliest possible time.

Should the Examiner find the application to be other than in condition for allowance, the Examiner is requested to contact the undersigned at the local telephone number listed below to discuss any other changes deemed necessary. Please charge any deficiencies and credit any overpayments to Attorney's Deposit Account Number 09-0441.

Respectfully submitted,

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